

S.7.2 OTHER FEDERAL AND NON-FEDERAL ACTIONS

This EIS evaluates the potential cumulative impacts of other Federal and non-Federal actions. The evaluation includes activities by local governments, private citizens, the Nellis Air Force Range, the Bureau of Land Management, the National Park Service, and the Nevada Test Site. It shows that earlier underground nuclear testing potentially results in long-term cumulative impacts due to potential groundwater contamination. Using conservative assumptions, the evaluation calculated the maximum potential dose from the radionuclides from underground testing to be 0.007 millirem per year. Therefore, the maximum cumulative impact of the Proposed Action in 10,000 years [using the mean impact at 18 kilometers (11 miles) from the repository] would be 0.00002 millirem per year (potential Yucca Mountain Repository impact) plus 0.007 millirem per year (potential underground testing impact), or 0.007 millirem per year.

S.7.3 TRANSPORTATION

The EIS analysis assumed the shipment of Inventory Module 1 or 2 to the repository would use the transportation routes described for the Proposed Action but would require almost twice as many shipments and an additional 14 years. This would result in increased industrial hazards, traffic fatalities, and latent cancer fatalities. For example, under the mostly legal-weight truck scenario, radiological and vehicle emission impacts from incident-free national transportation could increase from 12 to 24 occupational latent cancer fatalities, and estimated latent cancer fatalities in the general population could increase from 3 to 7 for the 38-year transportation of Inventory Module 1 or 2. Traffic-related fatalities from shipments of the modules would also be greater, increasing from 5 for the Proposed Action to 9 for Module 1 or 2. The incident-free impacts of the mostly rail scenario could be smaller because there would be fewer shipments.

National transportation of radiological materials from 1943 to 2047, not associated with the proposed repository would result in a total dose to affected transportation workers as high as 350,000 person-rem, which could result in about 140 latent cancer fatalities. These same activities would result in a total dose to the public of 340,000 person-rem, which could result in about 170 latent cancer fatalities. In addition, an estimated 97 traffic fatalities would result from the 104 years of transportation of radiological materials not associated with the Proposed Action.

The cumulative impacts to workers from transportation activities could be up to 160 or 180 latent cancer fatalities for Inventory Module 1 or 2, respectively. As many as 110 cumulative traffic fatalities would result from transporting radiological materials, including the inventory modules.

S.8 Cumulative Impacts of the No-Action Alternative

DOE analyzed the cumulative impacts of the No-Action Alternative with respect to Inventory Module 1. The Department did not analyze the cumulative impacts of the No-Action Alternative with respect to Inventory Module 2 because it did not have sufficient and readily available information about the Greater-Than-Class-C and Special-Performance-Assessment-Required wastes in that module to perform a meaningful analysis. Furthermore, this information could not be obtained without an exorbitant commitment of resources. However, information was sufficient to make the determination that there would be a small incremental increase in impacts over those of Module 1.

DOE estimated that about 6,400 concrete storage modules at the 72 commercial sites and three below-grade vaults at the DOE sites would be required to store 70,000 MTHM of spent nuclear fuel and high-level radioactive waste. In comparison, an additional 4,600 concrete storage modules (11,000 total) at the commercial sites and an additional five below-grade vaults (eight total) at the DOE sites would be required to store the entire inventory of Module 1.

Impacts to Workers from Industrial Hazards. As many as 3 fatalities could occur at the storage and generator sites during the first 100 years under the No-Action Alternative with Inventory Module 1. This compares to 2 worker fatalities during the first 100 years with the 70,000-MTHM inventory. Over the next 9,900 years, approximately 490 fatalities could occur under No-Action Scenario 1 with Inventory Module 1, in comparison to 320 with the 70,000-MTHM inventory. No industrial hazard fatalities are projected for either the 70,000-MTHM inventory or Inventory Module 1 under No-Action Scenario 2 after the first 100 years because that scenario assumes there would be no workers at the sites.

Radiological Impacts to Workers.

Approximately 43 latent cancer fatalities could occur at the storage and generator sites as a result of No-Action Scenario 1 with Inventory Module 1 over 10,000 years. This compares to 28 latent cancer fatalities in the worker population with the 70,000-MTHM inventory.

**ESTIMATED NATIONAL TRANSPORTATION
IMPACTS INVENTORY MODULE 1 OR 2
(for 38 years of operation)^a**

Impact	Mostly legal-weight truck scenario	Mostly rail scenario
Incident-free latent cancer fatalities		
Involved worker	24	7
Public ^b	5	<2
Latent cancer fatalities from accidents		
Public	0.0004	0.0008
Traffic fatalities^c	9	6
Latent cancer fatalities from maximum reasonably foreseeable accident		
Frequency of occurrence per year	0.55	5
	2.3×10^{-7}	2.8×10^{-7}
a. Modules 1 and 2 involve approximately the same number of shipments.		
b. Potential latent cancer fatalities result from very small doses to a very large population.		
c. Does not include 13 to 20 fatalities that could occur from repository workers commuting and transporting construction materials to the repository.		

As with the 70,000-MTHM inventory, no latent cancer fatalities are projected in the worker population for Inventory Module 1 under No-Action Scenario 2 after 100 years because there would be no workers at the sites.

Radiological Impacts to the Public. About 5 latent cancer fatalities could occur in the exposed population over 10,000 years as a result of No-Action Scenario 1 with Inventory Module 1. This compares to about 4 latent cancer fatalities with the 70,000-MTHM inventory.

Under No-Action Scenario 2, the number of latent cancer fatalities could increase from about 3,300 in the exposed population with the 70,000-MTHM inventory over 10,000 years to about 3,700 in the same period with Inventory Module 1.

S.9 Management Actions to Mitigate Potential Adverse Environmental Impacts

DOE has identified the types of mitigation measures it could take to reduce or avoid potential adverse impacts from construction, operation and monitoring, and closure of the proposed repository. The type of actions identified to date include:

- Commitments included as part of the Proposed Action that would reduce impacts. These commitments are based on DOE's studies of Yucca Mountain that have been ongoing for more than 10 years.